

REMARKS/ARGUMENTS

Status of Claims

Claims 1 - 3, 7, 8, 10-13, 23, 24, 25 and 26-32 are pending in the application. Of these claims, claims 7 and 25 have been withdrawn as drawn to non-elected subject matter. Claims 27-32 were withdrawn from consideration by the Examiner as being dependent upon claim 25 which was withdrawn. Of the remaining claims, claim 23 has been cancelled and claims 1-3, 8 10-13, 24-26 have been amended. In addition, new claim 33 has been added. Support for the limitations that the surfactant blend is a ternary blend that forms a complex that is clear and retains the antimicrobial property of the antimicrobial compound may be found at pages 8-9, 14-16 and page 64 (Example 10). Support for the molar ratios recited in new claim 33 may be found at page 9. Thus, the amendments do not add new matter.

The claims presently stand as rejected under 35 U.S.C. § 103 (a) as unpatentable over Wierenga et al., U.S. Patent No. 5,965,514 ("Wierenga"). According to the Examiner, Wierenga discloses a detergent composition comprising an amine oxide detergent, a quaternary ammonium disinfectant, and a surface tension reducing agent, which can be any surface tension reducing agent, including anionic surfactants. According to the Examiner, Wierenga differs from the claimed invention in that Wierenga discloses anionic surfactants among many other suitable surface tension reducing agents. It is the Examiner's position that it would have been obvious from Wierenga to add an anionic surfactant to the composition as the surface tension reducing agent. To the extent the Examiner's rejection is maintained against the presently amended claims, it is respectfully traversed.

The present technology is directed to achieving a sufficient antimicrobial activity when a cationic antimicrobial is placed into an anionic system. It is well known that when a cationic antimicrobial is combined with an anionic surfactant, they form a complex which destroys or significantly reduces the antimicrobial activity, as well as reduces the foaming and/or detergency of the anionic surfactant. See, for example pages 5-7 of the application.

The present inventors discovered that, by combining a bridging surfactant with an anionic surfactant and a cationic antimicrobial quaternary ammonium compound, they surprisingly obtained a ternary surfactant blend that formed a complex that retained the antimicrobial property of the cationic ammonium compound. The complex is clear and flowable.

The claims have been amended to more clearly recite that the three components - at least one cationic antimicrobial compound, at least one anionic surfactant, and a bridging compound - are combined to form a complex that has properties not previously obtained from an anionic/cationic complex. These properties include retention of the antimicrobial property of the cationic antimicrobial compound, retention of the detergency of the anionic surfactant, clarity, and flowability.

The Wierenga reference nowhere teaches or suggests the presently claimed complex formed from the cationic antimicrobial compound, the anionic surfactant, and the bridging compound. Indeed, Wierenga discloses that an acid must be added to the detergent compositions in order to protonate the amine oxide detergent to at least 10%, and preferably 70 to 100% of the amine oxide species. See, Col. 7, lines 47-53. Such formation of a cationic amine oxide as disclosed by Wierenga will preclude the amine oxide from forming the presently claimed complex because the positively charged amine oxide will be repelled from rather than complex with the positively charged cationic antimicrobial compound. That the amine oxide does not form a complex is further confirmed by Wierenga's disclosure that the cationic amine oxide competes with the cationic antimicrobial compound for binding sites on the cell wall (Col. 9, line 60 - Col. 10, line 25), which would not occur if the amine oxide were complexed with the cationic antimicrobial compound, as required by the present claims.

Wierenga discloses that the antimicrobial activity of the cationic antimicrobial compound can be restored by the addition of a surface tension reducing agent. However, Wierenga further discloses that the mechanism for restoring the antimicrobial activity is that the surface tension reducing agent lowers the surface tension of the composition to force more quaternary ammonium compound to the surface of the

bacterium to overcome the blocking effect of the protonated amine oxide. See, Col. 10, line 66 - Col. 11, line 6. Thus, Wierenga nowhere teaches or suggests applicants' approach to maintaining the antimicrobial activity of a quaternary ammonium compound namely, the use of a bridging compound to form a complex with the quaternary ammonium compound and an anionic surfactant. The formation of such a complex is recited in the present claims, but is nowhere taught or suggested by Wierenga.

Moreover, even if one were to select an anionic surfactant as the surface tension reducing agent, as suggested by the Examiner, the result would not be the formation of a complex as specified in the amended claims. Wierenga discloses that any surface tension reducing agent is suitable so long as it reduces the surface tension to 27 dynes per cm² or less. There is no teaching or suggestion that an anionic surfactant acts any differently in Wierenga's compositions than any of the other recited suitable surface tension reducing agents which, by definition, could not be components of a complex formed from a cationic antimicrobial, an anionic surfactant and a bridging compound.

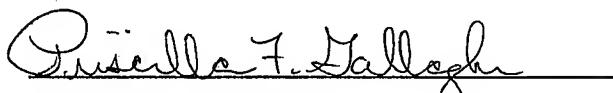
For the above reasons, it is submitted that the presently amended claims are patentable over the art of record and reconsideration of the application is respectfully requested.

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The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to deposit account No. 13-0017 in the name of McAndrews, Held & Malloy, Ltd.

Respectfully submitted,

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